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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/645,913	08/25/2000	Yuliya Anatoyevna Akulova	3-12-10	6849

7590

12/13/2002

Docket Administrator (Room 3C-512)
Lucent Technologies Inc
600 Mountain Avenue
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Murray Hill, NJ 07974-0636

EXAMINER

ESTRADA, MICHELLE

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 12/13/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/645,913

Applicant(s)

AKULOVA ET AL.

Examiner

Michelle Estrada

Art Unit

2823

-- Th MAILING DATE of this communication app ars n th cover sh t with th correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-58 is/are pending in the application.
- 4a) Of the above claim(s) 32-58 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11, 12, 22, 24 and 25 is/are allowed.
- 6) ☒ Claim(s) 1-10, 13-21, 23 and 26-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group II (claims 1-31) in Paper No. 5 is acknowledged.

Claim Rejections - 35 USC § 112

OK

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 14 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 14 and 15 recites the limitation "barrier" in line 2 of each one. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Sawada (5,258,632) and Steger et al. (5,788,799).

Sawada disclose forming a first dopant blocking layer (3) and forming a second dopant blocking layer (7); forming a third dopant blocking layer (5) between said first and said second dopant blocking layers; said first dopant blocking layer has a substantially uniform thickness.

Sawada does not specifically disclose that the first dopant blocking layer is formed at a first temperature and that the second dopant blocking layer is formed at a second temperature.

Steger et al. disclose that when using multiple temperature controllable barriers, each barrier may be set at a different temperature in proportion to the deposit formation reduction or removal requirements in the area of the process (Abstract); wherein the first temperature is lower than the second temperature depending on the requirements of the process.

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Sawada and Steger et al. to enable formation of the barrier layers.

Claims 4-9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Sawada and Steger et al. as applied to claims 1-3 above, and further in view of Hirayama et al. (5,608,230).

The combination of Sawada and Steger et al. does not disclose wherein said first dopant blocking layer is formed over a vertical sidewall of a mesa and over a horizontal

surface of a substrate; wherein said first and second dopant blocking layers are InAlAs; wherein the third dopant blocking layer is chosen from the group consisting of InP, InGaP, InGaAs, or InGaAsP.

Hirayama et al. disclose wherein said first dopant blocking layer (5) is formed over a vertical sidewall of a mesa and over a horizontal surface of a substrate; wherein said first and second dopant blocking layers are InAlAs; wherein the third dopant blocking layer is InGaAs (Col. 3, lines 55-56 and Fig. 1).

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Sawada, Steger et al. and Hirayama et al. to enable formation of the dopant blocking layers.

Choice of a particular temperature and thickness of the dopant blocking layers would have been a matter of routine optimization. See MPEP 2144.05.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Sawada and Steger et al. as applied to claims 1-3 above, and further in view of Morimoto (5,753,933).

The combination of Sawada and Steger et al. does not disclose that said first and second dopant blocking layers are InGaAlAs.

Morimoto discloses InGaAlAs as a suitable material for dopant blocking layers (Col. 7, line 53).

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Sawada, Steger et al. and Morimoto to enable formation of the dopant blocking layers.

Claims 14-21 and 26-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Sawada and Steger et al. as applied to claims 1-3 above, and further in view of Brar (6,414,340).

The combination of Sawada and Steger et al. does not disclose wherein said first and second dopant blocking layers are formed by MOVPE or MBE; wherein said first and second dopant blocking layers are InAlAs.

Brar discloses forming barrier layers either by MBE or MOVPE (Col. 5, lines 33-34); and wherein the first barrier (18) and the second barrier (24) are InAlAs.

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Sawada, Steger et al. and Brar to enable formation of the barrier layers.

Choice of a particular temperature would have been a matter of routine optimization. See MPEP 2144.05.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Sawada, Steger et al. and Hirayama as applied to claims 4-9 and 13 above, and further in view of Brar (6,414,340).

The rejection is applied as stated above.

Allowable Subject Matter


Claims 11, 12, 22, 24 and 25 are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Estrada whose telephone number is (703) 308-0729. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


MEstrada
December 11, 2002


Olik Chaudhuri
Supervisory Patent Examiner
Technology Center 2800